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Switch2 Energy Solutions Limited
High Mill, Cullingworth, Bradford, West Yorkshire BD13 5HA, UK

Registered in England 2409803

2WR7 Ultrasonic
Static Flow Meter

Non moving parts

Universal mounting

Wear - free Ultrasonic

Application
The 2WR7 is a flow meter for connection to a calculator for heat or cold consumption measurements in systems with water.

Design
The meter comprises of a flow measuring part (completely made of metal) and an associated electronic unit. These two components are affixed to each other by cable.

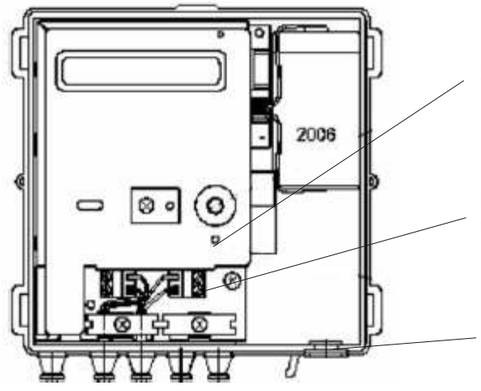
Method of Operation
Measurement is performed by the **ultrasonic flow principle**: The medium to be measured is routed through a measuring tube. Two transducers alternately generate ultrasonic waves that are propagated upstream and downstream and are received by the opposite transducers. The flow velocity and subsequently the volume flow can then be calculated from the time difference measured. Volume proportional pulses carry this information to a connected calculator.

Ultraheat 2WR7 flow meters are all equipped with an optical interface to EN 61107 as a standard.

Specification of the standard pulse output.

Type:	open collector, bipolar
Polarity:	none
Pulse significance:	see dial plate
Pulse length:	see dial plate
Pulse sequence:	not equally spaced, but in packages every 0.5s
Cable length:	2m
Voltage:	max. 30V
Current:	max. 30 mA
Voltage drop:	<0.3V at 10mA
Dielectric strength:	500V $_{eff}$ against ground (galvanic insulated)

2WR7



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Technical data for flow measurement

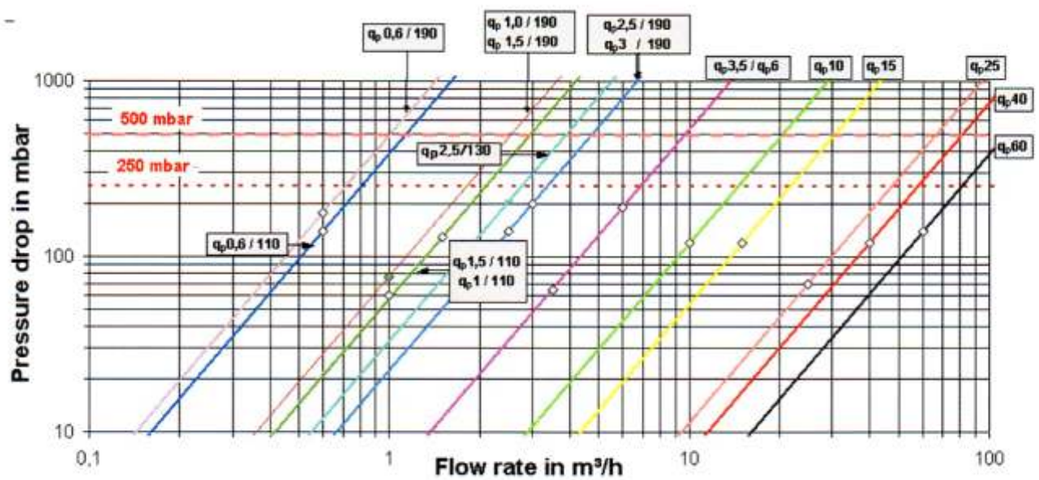
Small flow sensors

Nominal flowrate	q_p	**0.6**	**1.0**	**1.5**	**2.5**	m^3/h
Metrological class		1:100*	1:100*	1:100*	1:100*	
Maximum flow	q_s	1.2	2.0	3,0	5,0	m^3/h
Minimum flow	q_i	6**	10**	15**	25**	l/h
Operating limit ***		1,2	2,0	3,0	5	l/h
Pressure drop at q_p, (110 resp. 130/190mm)	Δp	140/176	60/76	130/162	205 /140	mbar
Flowrate at Δp = 1 bar, (110/190mm)	K_V	1.6/1.4	4.1/3.6	4.2/3.7	5.5/6.7	m^3/h
Mounting orientation		any				
Temperature range		10 to130 °C				
Maximum temperature	t_{max}	150 °C for 2000 h				
Nominal pressure	PN	1.6 MPa (PN 16) 2.5 MPa (PN 25)				
Admissible measuring error acc. to EN 1434 (class 2)		2 + 0.02 q_s/q max. 5%				%

Large flow sensors

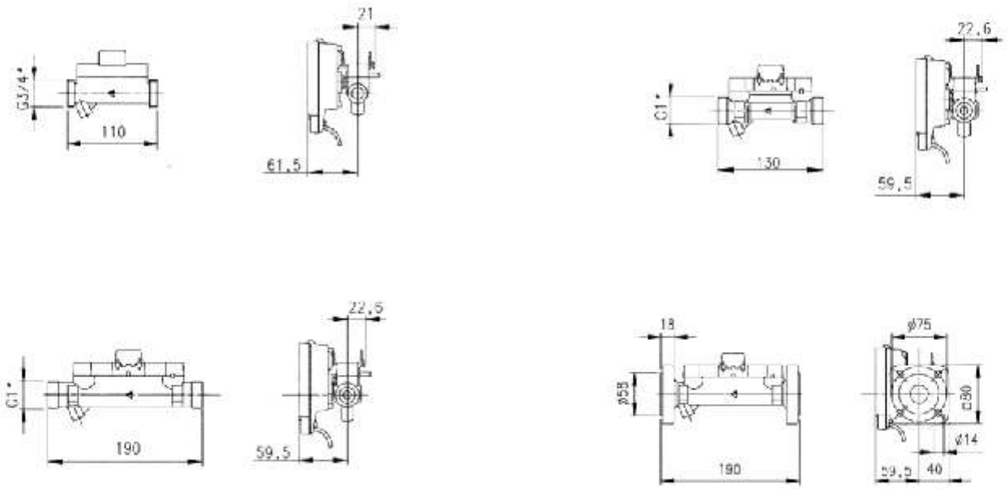
Nominal flowrate	q_p	**3,5**	**6**	**10**	**15**	**25**	**40**	**60**	m^3/h
Metrological class		1:100	1:100	1:100	1:100	1:100	1:100	1:100	
Maximum flow	q_s	7.0	12	20	30	50	80	120	m^3/h
Minimum flow	q_i	35	60	100	150	250	400	600	l/h
Operating limit ***		7	12	20	30	50	80	120	l/h
Pressure drop at q_p,	Δp	65	190	120	120	70	120	140	mbar
Flowrate at Δp = 1 bar	K_V	14	14	28	42	95	115	160	m^3/h
Mounting orientation		any							
Temperature range		10 to130 °C							
Maximum temperature	t_{max}	150 °C for 2000 h							
Nominal pressure	PN	1,6 MPa 2.5 MPa	2,5 MPa (PN 25)					1,6 MPa (PN16) 2,5 MPa (PN25)	
Admissible measuring error acc. to EN1434 (class 2)		2+ 0,02 q_p/q max. 5%							%

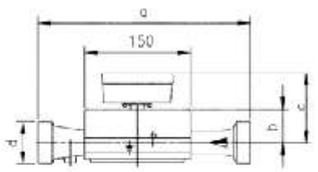
Pressure Drop Characteristics



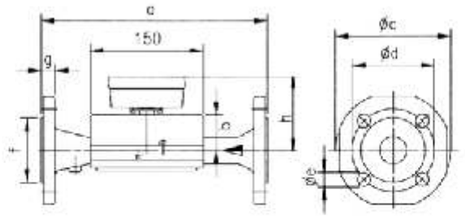
Dimensions

Meter dimensions:





Order No.	q_p m³/h	PN bar	a	b	c	d
2WR7 45	3,5	16	260	51	96	1/4"
2WR7 50	5	16	260	51	96	1/4"
2WR7 60	10	16	300	48	93	2"



Order No	q_p m³/h	PN bar	DN	a	b	øc	ød	øe	No. of holes	f	g	h
2WR7 46	3,5	25	25	260	51	115	85	14	4	68	18	96
2WR7 52	5	25	25	260	51	115	85	14	4	68	18	96
2WR7 61	10	25	40	300	48	150	110	18	4	88	18	93
2WR7 65	15	25	50	270	46	165	125	18	4	102	20	91
2WR7 70	25	25	65	300	52	185	145	18	8	122	22	97
2WR7 74	40	25	80	300	56	200	160	18	8	138	24	101
2WR7 82	60	16	100	360	68	235	180	18	8	158	24	113
2WR7 83	60	25	100	360	68	235	190	22	8	158	24	113

Wall mounting of electronic unit: